

## FUNCTIONAL DYSPEPSIA\*

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A WISE old philosopher has asserted that a good reliable set of bowels is worth more to a man than any quantity of brains. Most of us will agree that, so far as being conducive to human happiness and a feeling of well-being is concerned, the possession of a smoothly functioning gastro-intestinal tract is a thing more to be desired than intellectual supremacy. When we consider that the digestive system ministers to the strongest primitive human instinct, the instinct for food with which to support and continue life, we will realize why any disturbance of its function which impinges on consciousness will make a well man a sick one and create dis-ease in the true meaning of the word. Is it any wonder then, that dyspepsia as a symptom appears so often? It would be a safe guess that more than one-fourth of the patients who consult the physician come with symptoms referable to the gastro-intestinal tract. Whether or not such symptoms indicate disease in the gastro-intestinal tract is another story.

In a survey of the last 1,000 consecutive admissions into all services at the University Hospital it was found that 165 patients, or 16.5 per cent, complained of dyspeptic symptoms. Of these, 85, or 52 per cent, were shown on investigation to have disease in the gastro-intestinal tract, while 80, or 48 per cent, had disease elsewhere. Among 395 office and clinic patients seen personally during the past year 113, or 28 per cent, had dyspeptic symptoms. Of that number 39, or 34 per cent, had disease in the gastro-intestinal tract, while 74, or 66 per cent, had disease elsewhere. These findings are similar to those of Alvarez<sup>1</sup> who analysed 500 cases of dyspepsia and found definite evidence of organic disease in the gastro-intestinal tract in 35 per cent.

The term dyspepsia, as commonly used, refers to digestion in the stomach, not to the more important but less well understood intestino-biliary-pancreatic digestion. We all recognize, of course, that the division is a purely arbitrary

one and that both motor and sensory functions of the entire gastro-intestinal tract are closely related. Within the last few years the tendency has been to regard the motility of the gastro-intestinal tract as of much more importance than its secretory functions. Our knowledge of the secretory functions of the stomach has been extended tremendously within the last twenty years. The facts accumulated by the experiments of the physiologist, using gastric fistulæ in animals, together with the clinical evidence obtained by the use of the fractional test meal and duodenal drainage, have added considerably to our knowledge.

Valuable as these facts are, they throw little light on the solution of the problem of functional dyspepsia. When we come to a survey of our knowledge regarding the motility of the stomach and bowel, we find many gaps. Why does peristalsis occur? What are the factors affecting it? Why, in a word, does food go down the bowel? These are questions that we cannot answer. A comparison of our knowledge of the normal functions of the cardiac muscle with that of the gastric muscle surely makes the gastro-enterologist envy the cardiologist. Can we hope for the day when we can localize a pace-maker for normal gastric contractions which presides with the same degree of dictatorial control over the gastric rhythm that the sino-auricular node does over cardiac rhythm? Can we hope for another Lewis or Mackenzie to demonstrate gastric arrhythmias as we know the cardiac arrhythmias? Will this generation or the next produce a chemist or a pharmacologist who can furnish us with a drug with an action as specific on the gastro-intestinal musculature as digitalis has on the musculature of the heart? Such additions to our present knowledge would go far towards elucidating the problems of functional dyspepsia.

Let us define what we mean by the term "functional dyspepsia." It may seem rather platitudinous at the outset to state that "dyspepsia" is not a disease any more than "dyspnoea" is, yet how many of us are content with it as

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a diagnostic label. Dyspepsia is best thought of as a term used to indicate a group of symptoms and signs referable to disordered function of the stomach. Such symptoms and signs are loss of appetite, nausea, vomiting, flatulence, acid eructations, heart-burn, epigastric discomfort, pain and tenderness. The normal individual is unaware of his stomach except when he experiences sensations of hunger, satisfaction or repletion, telling him that this viscus is empty, comfortably filled, or overfilled. The dyspeptic individual on the other hand experiences the symptoms mentioned, and when such sensations obtrude themselves into his consciousness it may or may not mean organic disease in the stomach. At any rate it does mean impaired stomach function due to abnormal stimuli produced in the stomach or elsewhere.

It would be safe to say that more than three-fourths of the patients coming to us with such symptoms have not organic disease in the stomach. Let us remind ourselves that there are only three commonly occurring morbid anatomical states in the stomach—gastritis, ulcer, and cancer. These I believe should be thought of first and excluded by clinical, chemical and radiological investigation. Having excluded these, there remains a vast host of ailments, with symptoms referable to the stomach, in individuals who haunt our offices and clinics and live the unhappy lives of what for a better name we may call the “functional dyspeptic.”

As an aid in the investigation and treatment of such patients I feel that an attempt at classification of such conditions helps to clarify our thinking. Someone has said, in attempting to follow the various classifications of diseases that are inflicted on us in current literature, that classification is a disease itself. The attempted classification of the older text-books is confusing and lacks a sound physiological basis. For instance, the grouping of functional diseases of the stomach as gastric neuroses and their treatment under motor neuroses with hypermotility or hypomotility, secretory neuroses with hypersecretion or hyposecretion, is confusing. Such a grouping does not give the physician any clear conception to guide him in his practice and certainly it does not bear the light of radiological and chemical investigation. Hyperchlorhydria, for example, as a secretory neurosis, while it may exist as a clinical entity, certainly

is not always associated with an increased gastric acidity as measured by fractional analysis. Neither does so-called atonic dyspepsia show any impairment of peristalsis nor delayed emptying time under the all-seeing eye of the radiologist. Any attempt at classification of functional dyspepsia under presenting symptoms such as flatulent dyspepsia, or bilious dyspepsia, or under some imagined functional disorder in the stomach such as fermentation or regurgitation, will not lead us far towards the solution of the problem.

I have found that a classification based on purely etiological considerations as suggested by Ryle<sup>2</sup> has been of great help as a working basis. Slightly modifying Ryle's classification, functional dyspepsia can be conveniently divided into four groups:

Group I. *Habit dyspepsia* (resulting from faulty physical habits). Examples:— over-eating; under-eating; over-work; constipation; eating improperly cooked foods; lack of occupation and exercise; insufficient mastication.

Group II. *Nervous or psychogenic dyspepsia* (due to faulty mental or nervous adjustments). Examples:— aerophagy; nervous exhaustion; worry and anxiety states; refusal of food; morbid fears; hysteria; hypochondriasis.

Group III. *Toxic and infective dyspepsias* (due to exogenous or endogenous poisons or more obscure conditions interfering with general health and nutrition). Examples:— alcohol and tobacco; strong tea or coffee; food allergy; lead poisoning; pulmonary tuberculosis; oral sepsis; muscular hypotonus; visceroptosis; Addison's disease; hyperthyroidism, hypothyroidism; severe anæmias; chronic Bright's disease; diabetic ketosis; loss of fatty deposits; states of debility associated with auto-intoxication.

Group IV. *Reflex dyspepsia* (due to stimuli originating outside the stomach). Examples:— vomiting of pregnancy; special sense disturbances, such as astigmatism and Menière's disease; central nervous conditions, such as tabes dorsalis, migraine, cerebral tumour; extra-gastric abdominal and pelvic disease, such as chronic cholecystitis, chronic appendicitis, carcinoma of the colon, retro-flexion and uterine tumour; epigastric, inguinal or femoral hernia; Diseases of the urinary tract, such as pyelitis, renal calculus, ureteral calculus or stricture, nephroptosis; cardio-vascular disease, such as

coronary thrombosis, congestive failure or hypertension.

With such a grouping as this in mind, the investigation of a case of functional dyspepsia with regard to both etiology and treatment is greatly facilitated. It is open to the criticism, of course, that there may be some doubt as to the particular way in which a known etiological factor may cause dyspepsia. For example, visceroptosis as a cause might more properly be placed in group IV than in group III, or vomiting of pregnancy might more logically be placed in group III than in group IV. It provides a useful working basis, however, and eliminates the bandying about of loose terminology in describing dyspepsia in the absence of organic disease of the stomach. We can readily call to mind instances of the various types common in our everyday experiences. Those most commonly met with and most amenable to treatment are the "habit dyspepsias." The rapid eating of improperly chewed food by a person of sedentary occupation, whose chief form of exercise is eating and playing bridge, is known to us all. The treatment will entail a readjustment of the patient's method of life, which may or may not be easy in these days of high-pressure living.

In group II we meet our most knotty problems—nervous dyspepsia—the woman who comes with flatulence, heartburn, vomiting, epigastric pain and what-not, in whom no evidence of organic disease exists. Too often we label her as a neurotic or a case of hyperchlorhydria, and she floats through life from one physician to another on a sea of alkalies and bromides, until someone discovers that the background of her dyspeptic symptoms is the morbid fear that she has contracted venereal disease from her husband. Anxiety states such as this, as a cause of dyspepsia, are notoriously common and often go undetected. A sympathetic attempt to understand the patient's viewpoint will do much towards the amelioration of her symptoms.

A still more difficult type of nervous dyspepsia is that exemplified in the psychoneurotic individual whose nervous instability leads to abnormal sensations, referable to the abdominal viscera, impinging on consciousness. The persistence of dyspeptic symptoms in such a patient, in the presence of some vague sign such as visceroptosis or slight tenderness in the right iliac fossa, makes surgical treatment inviting to

appeal to but usually disastrous to accept. Such a patient is only too ready to have something surgical done and when he presents himself later with a battle-scarred abdomen, the problem is just so much the more difficult.

May I point out that nervous dyspepsia may mimic any form of organic disease in the stomach. Very often the picture may be that of a duodenal ulcer, with pain occurring several hours after food and relieved by food or alkalies. One has seen this picture repeatedly in university students before examinations, when there is some degree of mental strain. In such cases a fractional gastric analysis may show a highly acid secretion and the radiologist may report spastic deformity in the duodenal bulb. For this reason the condition has been dignified by the name of duodenitis. A carefully-taken history reveals the absence of periodicity, except in relation to the emotional strain involved, and the symptoms disappear when the latter is removed.

Again, nervous dyspepsia may give a symptomatic picture which strikingly simulates gastric carcinoma. A woman of 67 complained of epigastric pain of five months' duration, associated with nausea and vomiting. There had been no previous history of dyspepsia. She had lost 30 pounds in the previous two months and had little appetite. The patient, whose sister had died of cancer of the stomach a year before, was afraid she had the same disease. Physical, chemical and radiological investigation gave normal findings. On being assured that she did not have cancer, she regained her appetite, her pain disappeared in a few days, and she returned to her normal weight in two months.

The diagnosis of the dyspepsias of the third and fourth groups calls for a careful history, a painstaking general examination, and above all an appreciation of the fact that the stomach often behaves as the alarm clock of the entire body. This organ, because of its rich innervation by the sympathetic nervous system, responds to any toxic or reflex stimulation of this system, and, whether by abnormality in tonus, peristalsis, or secretion, gives rise to symptoms which bring its owner to the physician complaining of indigestion. How frequently have we seen a young adult complaining of loss of appetite, especially for breakfast, in whom we discover crepitations at both apices and diagnose

early pulmonary tuberculosis. The patient with hyperthyroidism often comes complaining of dyspeptic symptoms. An examination of the pupillary reflexes and knee-jerks may save us the humiliation of diagnosing a gastric ulcer when we are dealing with a tabetic crisis. Chronic appendicular dyspepsia and the "gastric mask" of gall-bladder disease need only be mentioned, to remind you that extra-gastric abdominal disease gives rise to reflex functional disturbances of the stomach. In disease of the urinary tract, such as pyelitis, renal or ureteral calculi, and Bright's disease of the kidney, the outstanding symptoms are often referable to the stomach. Bloch,<sup>3</sup> Friedenwald and Morrison<sup>4</sup> have recently called attention to the puzzling picture often presented in such forms of urinary disease. These writers point out that dyspeptic symptoms may stand out so prominently in such conditions that many of them are treated as peptic ulcer before being correctly diagnosed.

#### SUMMARY

An effort has been made to demonstrate that:

1. Dyspepsia is a common finding, and occurs more often in the absence of organic disease in the stomach than in its presence.

2. "Dyspepsia" is not a diagnosis but the name given to a group of symptoms.

3. When such a group of symptoms presents itself in the absence of organic disease in the stomach, we may term the condition "functional dyspepsia."

4. In our present state of knowledge of gastric function we are not justified in attempting to classify functional dyspepsia in terms of abnormal gastric secretion, motility or sensation.

5. A grouping based on etiological considerations, as suggested by Ryle, has been advanced. Such a grouping stimulates the physician to take a wider viewpoint and facilitates a more thorough investigation of the patient with a view to diagnosis and treatment.

#### REFERENCES

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2. RYLE, *Gastric Function in Health and Disease*, Oxford Medical Publications, London, 1926.
3. BLOCH, *Trans. of Chicago Urolog. Soc.*, 1931, 1: 163.
4. FRIEDENWALD AND MORRISON, *J. Am. M. Ass.*, 1932, 99: 524.

## SOME BRIEF NOTES ON THE DIAGNOSIS AND TREATMENT OF BONE TUMOURS\*

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### VII.

LOOKING at the cancer problem purely from the standpoint of the individual who is suffering from a malignant growth, it is clear that the chief concern of his medical advisers should be to afford him prompt and effective treatment. To do this we must recognize the fact that he has cancer and then decide what form of treatment offers him the best possible outlook for a permanent cure, is such is attainable; if it is not, then such treatment as will give the greatest degree of comfort and the longest survival period. In the field of cancer, bone tumours have long offered a fascinating oppor-

tunity for intensive study, and in recent years considerable progress has been made toward a more accurate separation of the various types. In treatment, also, efforts have been made to bring some semblance of order out of chaos. But until that happy millenium has been reached, when a successful specific treatment is found to cure cancer, we must rely upon earlier diagnosis and prompt treatment to cut down the appalling death rate from this disease. It will be my purpose in this paper briefly to summarize the essential features which lead to a correct diagnosis and to review the methods of treatment.

It is desirable at the outset to classify the various forms of bone tumours, and then to describe the general features pertaining to bone tumours as a whole; later the distinctive features of the various types may be mentioned.

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Preceding articles in the second series on physio-therapeutical subjects can be found in the *Journal* as follows: 1932, 27: 521, 612; 1933, 28: 30, 182, 246 and 392.